REMARKS

The present amendment is submitted in response to the Office Action mailed June 15, 2005, in which all of the pending claims 1-20 were rejected. Applicant has thoroughly reviewed the outstanding Office Action including the Examiner's remarks and the references cited therein. The following remarks are believed to be fully responsive to the Office Action and, when considered with the above amendments, are believed to render the claims at issue patentable.

Claims 1, 10, and 17 are amended herein. Applicant respectfully submits that no new matter has been added and that the originally filed specification, drawings, and claims support the amendments.

Claim Rejections Under 35 U.S.C. §102

In the Office Action, claims 1-20 were rejected under 35 U.S.C. 102(b) as being anticipated by Inada (U.S. Patent 6,452,147). Applicant respectfully traverses this rejection.

The Inada reference is generally directed to an image forming apparatus that has a function for correcting a condition for an image formation in accordance with a detection result given by a detecting unit which detects a toner pattern formed on a transfer medium by an image holding component (see Abstract). Specifically, the invention in Inada includes an optical sensor 25 used to detect the toner density of registration marks formed on the transfer belt 31 by each of the four image forming units 40C-40K and uses the output of the sensor to generate information necessary to correct the image registration of the the image forming units (see, for example, column6, lines 39-46, and column 7, lines 37-39 and 56-62).

In the Office Action, the Examiner asserts that the optical sensor 25 corresponds to the "optical receiver receiving optical scanning signals and transforming the optical scanning signals into digital signals while the imaging system switching device is scanning an input document," which is recited in each of the independent claims. However, Figure 2 of Inada discloses that the optical sensor 25 is located along the transportation direction of the transfer belt 31, after the photosensitive drums 41C-41K, where, as shown in Figure 5, for example, it is used for registration correction by sensing the image formed along a strip on the transfer belt 31. Thus, the optical sensor 25 is not capable of receiving optical scanning signals of the whole input document, as the independent claims require.

Rather, the function of scanning input documents is performed in Inada by a separate image reading unit 15 (see Figure 2), which optically reads an original document so that image data of he original document is obtained (column 5, line 65, through column 6, line 1). Unlike the present invention, Inada fails to teach or suggest using an imaging system switching device to integrate efficiently together the optical transmitting devices of a multi-function office machine, thereby reduce the size and the total cost of the multi-function office machine.

As recited in the independent claims, the imaging system switching device of the present application has a roller, a reflector, a lens, an optical receiver, an optical transmitter, and an optical switch. The reflector swings within a predetermined angular range and cooperates with the roller rotation to scan and/or print the contents of a document. The optical receiver receives optical scanning signals and transfers the same to digital signals while the imaging system switching device is

scanning an input document. The optical transmitter generates optical output signals while the imaging system switching device is printing an output document. The optical switch is capable of switching optical signal transmitting paths.

Further, the independent claims recite, "While the imaging system switching device is scanning the input document, the first roller rotates the input document and cooperates with the reflector swinging in the predetermined angle range to scan the whole input document and generate the optical scanning signals, the optical scanning signals are transmitted to the reflector by way of the lens, the reflector reflects the optical scanning signals to the optical switch by way of the lens, the optical switch transmits the optical scanning signals to the optical receiver, and the optical receiver transfers the optical scanning signals to the digital signals" (emphasis added).

Further yet, the independent claims recite, "While the imaging system switching device is printing the output document, the optical transmitter generates the optical output signals to the optical switch, the optical switch transmits the optical output signals to the reflector by way of the lens, the reflector swings in the predetermined angle range and cooperate with a rotation of the first roller so that the optical output signals are transmitted to the first roller by way of the lens to form an electrostatic latent image thereon, and the electrostatic latent image with toner is transferred to an output medium" (emphasis added).

Thus, the claimed imaging system switching device utilizes the same lens to transmit the optical scanning signals to the reflector and the same optical scanning signals reflected by the reflector to the optical switch. The claimed imaging system switching device further utilizes

the same lens and the optical switch to transmit the optical scanning signals to the optical receiver while the imaging system switching device is scanning the input document and to transmit the optical output signals to the reflector while the imaging system switching device is printing the output document.

However, Inada only discloses the use of rotating (not swinging) mirrors 19K-19C in connection with the laser diodes 18K-18C for forming electrostatic latent images on photosensitive drums 41K-42C (see, for example, Figure 2). Inada entirely fails to disclose how the same mirrors 19K-19C could be involved in any way in the alleged scanning of an input document by optical sensor 25.

Inada also fails to disclose the recited lens, although the Examiner asserts that the use of a lens is inherent. There is doubt about the Examiner's assertion, however, since light sources 18K-18C used for image formation are laser diodes, and may very well not inherently require external collimating lenses. Moreover, as in the case of the rotating mirrors, there is no apparent way that the same lens used in printing optical path between one of the laser diodes and its corresponding photosensitive drum, could be part of the optical path of optical sensor 25.

In the Office Action, the Examiner points to Inada, at column 10, lines 51-62, as disclosing "an optical switch capable of switching optical signal transmitting paths," as recited in the claims. However, what the referenced text discloses is a mechanism, illustrated in Figure 8, that drives the position of optical sensor 25 in a direction transverse to the direction of motion of transfer belt 31 so as to detect the positions of registration marks on the transfer belt. There is no suggestion in Inada

that the alleged "optical switch" is also part of the transmission path for the image forming part of the apparatus.

Thus, it is respectfully submitted that Inada fails to teach or suggest utilizing the same lens to transmit the optical scanning signals to the reflector and the same optical scanning signals reflected by the reflector to the optical switch, as required by the claims. Moreover, Inada fails to teach or suggest utilizing the same lens and the optical switch to transmit the optical scanning signals to the optical receiver while the imaging system switching device is scanning the input document and to transmit the optical output signals to the reflector while the imaging system switching device is printing the output document, as the claims require.

As noted above, Inada actually teaches that scanning of an input document is performed by image reading unit 15, not optical sensor 25. But, Inada fails to teach or suggest combining the lens and the optical paths of the image reading unit 15 with the multi-color image forming apparatus that performs the printing function. Even applying the prior art to various image forming apparatuses, the various image forming apparatuses of the prior art still use different lens and optical paths to scan and print documents. Therefore, the various image forming apparatuses according to the prior art can not efficiently integrate together optical transmitting devices, reduce the size and the total cost thereof, as does the present invention.

In general, the claimed invention and the applied prior art are totally different in structure and function. For at least the reasons discussed above, Applicant submits that independent claims 1, 10 and 17 patentably distinguish over the Inada reference and respectfully

requests reconsideration and withdrawal of the §102(b) rejection thereof. Further, inasmuch as claims 2-9, 11-16, and 18-20 depend from independent claims 1, 10 and 17 respectively, and add further limitations thereto, it is submitted that they are also allowable over the applied reference.

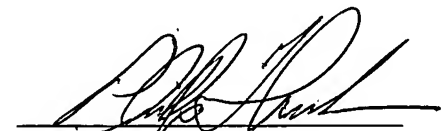
Applicant has also reviewed the art cited but not relied upon by the Examiner. Applicant believes that these references do not affect the patentability of the claims as currently presented.

CONCLUSION

In light of the above amendments and remarks, Applicant respectfully submits that all pending claims as currently presented are in condition for allowance, and hereby respectfully requests notice of such and passing of this application to issue.

Should the Examiner believe that a conference would help to expedite the prosecution of this application, the Examiner is encouraged to call the undersigned attorney to arrange an interview.

Respectfully submitted,



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